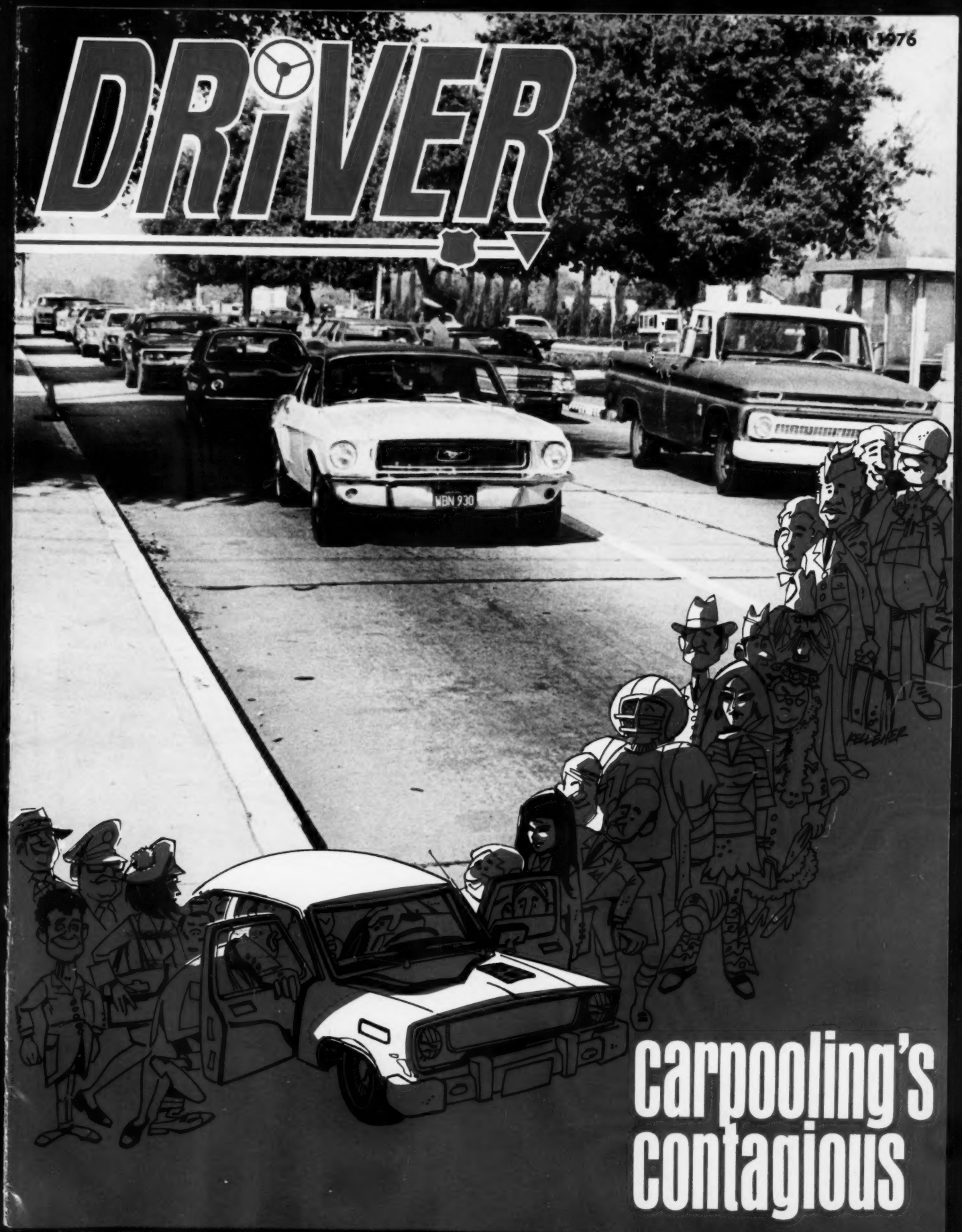
DRIVER

JAN 1976



Pool it

DRIVER

carpooling's contagious

You can pocket several hundred bucks a year, save your wheels as well as your sanity, and make Uncle Sam one happy fellow just by sharing a ride to work.

"The greatest invention since sliced bread!" Sounds like a weird description for something so uncomplicated as carpooling, but the veteran sarge in a neighboring office was waxing eloquent.

"Would you believe," he asked one of DRIVER's editors, "that I'm currently saving $12.50 a week—or more than $650 a year—just by riding back and forth to work in a carpool?"

"That seems like a lot of loot," we replied somewhat skeptically. Then like the true Missourian, we suggested, "Maybe you'd better show us."

Obviously, that was the wrong thing to say to our E-6 friend. "It all depends on how far you live from work, how many people ride with you, and what kind of wheels you drive—an economy job or a standard size car," he explained.

"Take me for example—I live 10 miles from the base and share rides with four other guys. I catch driving duty only every fifth week that way and, with a standard size two-door sedan like my Chevy Impala, I actually save 654 bucks a year. And, as the price of gas keeps going up, I save even more. That's according to the latest figures from the Highway Users Federation."

"If that's so," we said appreciatively, "maybe we'd better spread the word to our readers. They're probably as skeptical as we are. Now you can see how we get an idea for a story."

A few weeks and a series of letters and long distance phone calls later, we'd checked out our friend's "money-saving" remarks and found his enthusiasm contagious. If anything, he was conservative. Maybe you'll come down with carpool fever, too, after reading our findings.

A group-commuting program makes sense for everyone concerned. Our employer (Uncle Sam) likes it because it saves money in parking lot purchase, construction, and enforcement costs; improves our morale; increases our efficiency on the job; reduces our

continued

(left, top)
Vans are the way to go if you want to save the most money from carpooling. These Tinker AFB riders also find that the greater the number of poolers, the better the parking spot.

(left)
Thousands of vehicles occupy the mile-long parking lot in front of the Oklahoma City Air Logistics Center, home of the world's largest jet engine overhaul facility, at Tinker AFB. Forty percent of Tinker's nearly 22,000 personnel participate in carpools, about double that of the typical military installation. This represents an estimated savings of about 8,800 parking spaces to the base and $4 million annually to pool riders ($454 average per person).

DRIVER

THE TRAFFIC SAFETY MAGAZINE FOR THE MILITARY DRIVER

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DEPARTMENT OF THE AIR FORCE · HQ AIR FORCE INSPECTION AND SAFETY CENTER
Norton Air Force Base, California 92409

Lt Gen DONALD G. NUNN
The Inspector General, USAF

PUBLISHED IN COOPERATION WITH THE DEPARTMENT OF THE ARMY AND THE DEPARTMENT OF THE NAVY

Dr. FRANCIS S. McGLADE
Director of Safety
United States Army

Brig Gen RICHARD E. MERKLING
Director
Aerospace Safety (USAF)

RADM WM. ELLIS
Commander
Naval Safety Center

Capt. TOBIAS van ROSSUM DAUM
Editor

VIRGINIA HENDRIX
Managing Editor

SSgt DON HOLT
Technical Editor

FRANCIS R. FOWLER
Feature Editor

DON KELLEHER
Art Director

MSgt BILL FOSTER
Staff Artist

MSgt MIKE KEEFE
Staff Photographer

ALICE MILKEY
Editorial Administration

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Certain individuals shown in this magazine are not members of the Air Force and therefore do not conform to Air Force grooming standards.

THE EDITOR SPEAKS

DOUBLE CLUTCH

PLUSHMOBILING

Driving a large, fully equipped American car is like being in another world. You are isolated from the road by springs, shock absorbers, and padding. You are spared all but the most minor physical effort by automatic transmission, cruise control, power brakes, and power steering. Your mind is lulled by stereo, soothed by climate control and tinted glass, and sound-insulated from traffic noises.

It's a weird world. For some it serves as a private escape from a distasteful job, personal problems, or squalid living conditions. But, however it's used, the important thing is not to be seduced by it.

The reality is there, and it's a reality with emotional dangers as well as physical. In a flash you can be faced with making the instant decision of whether to run over a pet dog or swerve into a parked car; hit a child, or go into opposing downtown traffic; go down a deep embankment or head-on into a pickup. Life and death matters which we don't relish thinking about.

Driving *can* be enjoyable, but don't let the deceptive environment of your car fool you into ignoring the reality and seriousness of your task.

NEXT MONTH

Driving in Japan

Teamwork did it at Tinker. Instrumental in developing the huge base's aggressive carpooling program, including a special data form for computer use and a grid map sent to all employees, were (L to R) Clayton Klein, Plans and Programs; Capt Jerry Phleeger, president, Junior Officers' Council; and Ron Chamberlain, Maintenance Illustrator.

tardiness rate; and gives our base or facility a better community image.

Individually, we save time, money, and wear and tear on ourselves and our vehicles. We can also leave a car at home for our spouse or other family needs.

Overall, carpooling cuts down highway congestion, thereby reducing the number of traffic accidents with resultant savings in lives and injuries; saves millions of barrels of fuel across the nation daily; reduces smog; and helps to make streets and highways last longer.

Most people already do some pooling—they just don't call it that. Anytime two or more people get in the same car or straddle the same motorcycle, they're pooling. When a two-car family leaves one vehicle at home or two singles double up on dates, it's pooling. Carpooling ideas are unlimited, of course, but we each stand to benefit more by sharing rides (1) to work, (2) to school, and (3) on shopping tours.

Two on a bike is pooling, too! Motorcyclists not only save bread by sharing, they also get preferred parking and take less space.

continued

CARPOOLING'S CONTAGIOUS!

A sampling of readers showed that personnel in the Armed Services, both military and civilian, join carpools primarily for three reasons (in this order): Save money; avoid the responsibility of driving; and prolong the life of their vehicle.

Coming in a close second with some poolers was an intangible benefit—priority parking. Most military facilities like sprawling Tinker AFB in Oklahoma City provide reserved spaces close to their job locations for vehicles occupied by two or more persons.

Drivers and riders alike also appreciate the favored treatment they get in some localities where highways feature special on-ramps and open traffic lanes for carpool vehicles. Examples are the San Bernardino, Calif., Freeway leading to and from downtown Los Angeles and Shirley Highway in Northern Virginia which carries traffic to and from Washington, D.C., and the Pentagon.

Others say they enjoy fellowshipping, catching up on reading or office work, and grabbing some extra shuteye.

Of course, like shooting craps in Las Vegas, the secret of carpooling lies in the odds. Unlike gambling tables, however, the odds are always in your favor—the more the players, *the greater the profits for everyone.*

OK, since bucks speak the loudest, how much can you actually save by pooling? Latest estimates for a 20-mile daily roundtrip show that two commuters sharing a subcompact like a VW can each pocket $281 a year, while five persons in a standard size vehicle like a Plymouth sedan can each save $654 annually.

continued

Parking signs tell the story at Tinker AFB. Carpoolers receive the red rug treatment according to total persons per vehicle. Category 1 poolers (four or more to a car) park closest to their work area as indicated by sign in the background. Category 2 riders (two or three per car) park the next closest.

"Double up, America" is the decal message being applied to the bumper of her car by Air Force secretary Karen Showalter, telling all followers that "Two can ride cheaper than one."

The key to using computers to match carpoolers is a detailed grid map of their community. Here, two Norton AFB secretaries, Yvonne Bokoles, left, and Karen Showalter, locate their grid numbers for entry on a base-wide commuter survey form.

Even greater savings can be achieved through an eight-occupant vanpool, for example, costing only 54c a person for an average 20-mile roundtrip. In comparison, costs for rail transit now range from $2.25 to $3.29 per person per trip, while conventional buses average $1.76.

One way to form a vanpool is to arrange with an automobile leasing company to "borrow" a van for a five-day trial run (you pay for gas only) and let your prospective passengers ride free to see what vanpooling is all about. During the trial period the driver figures out routes and calculates schedules, van expenses, and passenger fares.

Employees of the Scott Paper Company in Philadelphia started their vanpooling that way and it's been a great success. At Scott a 12-passenger van, for example, travels 25 miles roundtrip daily with each passenger's fare set at $24.80 per month; another commutes 45 miles roundtrip daily with each rider paying $29 per month. The driver rides free, receives the 9th, 10th, and 11th fares as profit, and has personal use of the van the rest of the time for 8.4c a mile including gasoline. Be sure to check out insurance requirements if you do this as a commercial enterprise.

There's not a single military facility anywhere, including those with all on-base housing for military personnel, that can't benefit from carpooling. A survey by DRIVER of a typical military installation shows that 70% of all personnel drive to and from work alone, 21% ride in pools, 2% ride motorcycles, 1% ride buses, and 6% use other means of transportation—walking, bicycling, hitchhiking, taxies, etc.

In sharp contrast, however, a facility that wants to go all out, like Tinker AFB, can easily double its total of share-riders. Today, 40% of Tinker's nearly 22,000 personnel are members of car or vanpools.

Beginning in early 1974 with full support of the commander of the Oklahoma City Air Logistics Center, Tinker established a Carpool Service Center under its Energy Program Control Group.

Using computer-age techniques and assisted by the Junior Officers' Council, a system matching persons who wanted to join or establish carpools was developed. Computer printouts were sent to Tinker employees showing the names of other people living in their areas, their work shifts, and in some cases their home and office telephone numbers. Special grid maps were printed to help code each employee by location of his residence.

A prime key to the program's success was Tinker's issuance of preferred parking passes to all pool vehicle drivers. Category 1 passes permit parking close to their work areas for drivers with three or more riders, while Category 2 passes permit parking somewhat farther away but still within easy walking distance for drivers with one or two passengers.

Another vital ingredient has been publicity given the program by the base newspaper, the *Tinker Take-Off*. Stories and photos are published almost weekly.

An abundance of materials, guidance, and success stories are available to organizations and individuals alike on how to set up car and vanpools. Try contacting the Department of Transportation and Highway Users Federation in Washington, D.C., Double Up America in New York City, or your local state, regional, or city commuter agency such as Commuter Computer in Southern California. Auto service clubs, oil companies and corporations also are anxious to share ideas.

Drive a '76 Pool

Four cars in one—that's the amazing 1976 Pool operated by Commuter Computer, a non-profit, share-the-ride promotional agency. The full size vehicle is driven around the greater Los Angeles area to remind puzzled onlookers that by putting four drivers and their cars together, each saves an average of $500 a year after taxes. In case you haven't figured it out yet, the '76 Pool is a crazy composite of parts from Ford, Oldsmobile station wagon, Vega, and Volkswagen.

(left)
All aboard! An ardent believer in group commuting, Air Force Inspection and Safety Center secretary Linda Strickland demonstrates the logic of filling empty seats as she swings open the door of a roomy van in a preferred parking zone.

For addresses of these and other sources of carpooling information, please write to DRIVER, Attn: Carpooling, AFISC/SEDD, Norton AFB, CA 92409, and we'll shoot back our latest list to you. We'd also appreciate receiving your comments, experiences, complaints, etc., if any, on the subject.

Once a carpool gets started, it has to stay together to pay off—both for you and your employer. DRIVER suggests the following 10 tips by the San Antonio Energy Conservation Program (as amended for our readers) on how to make a carpool operate successfully:

1. You have to cooperate to stay together. Most of it is a matter of common courtesy. Learn and respect each other's likes and dislikes from the very beginning. Conversation, smoking, radio programs, seating arrangements, air conditioning, heating, and reading are all issues that should be settled at the start.

2. When sharing driving duties, rotate weekly or monthly instead of daily. This reduces chances for misunderstandings and confusion.

3. Agree in advance on reimbursement for driving expenses, then set regular payment schedules. Here's an easy way to decide what each member should pay: Multiply the roundtrip mileage by 16c per mile (for a standard size car), add special costs like road and bridge tolls and any parking lot charges, then divide by the number of occupants (including driver) for each person's daily share.

4. Establish a "clean car" policy and stick to it. The car that carries you to and from work should be clean, safe, comfortable, and well serviced. Always have enough gas for a roundtrip.

5. Avoid side trips. One of the easiest traps to get into is doing errands on the way to or from work. Set a regular route and stick to it. This avoids a lot of hassles.

6. Don't honk for passengers. Honking bothers neighbors—especially at early hours. Wait a predetermined amount of time for each passenger and then drive on.

7. Establish a chain of communication. This will permit adjustments to be made in the daily schedule with minimum delays and inconveniences if illness or mechanical problems occur. The chain of communication should parallel the morning pick up sequence.

This unique sign reminding motorists to help save fuel by pooling rides is located on Interstate 5 on the outskirts of Olympia, Wash.

8. Expect occasional adjustments. People move and change jobs. Be prepared to find a replacement if a member drops out.

9. Drive safely. Speeding, taking chances, or just plain negligence should never be tolerated. Make safety your rigid rule.

10. Discuss your pooling plans with your insurance agent or military staff judge advocate, because insurance laws vary in each state. Liability coverage is usually adequate but make certain of it. Many companies now offer reduced rates for carpoolers.

LANE POSITION

by Don M. Carnahan

Have you ever heard that "sacred cows make tough hamburger?" Well, I can't speak with much authority on the current state of the burger world, but at least one of motorcycling's "sacred" axioms could make it pretty tough on you if you don't temper it with judgment.

AXIOM: *Always ride in the left tire track of the highway lane.* Seem strange to question this principle in a motorcycle riding article? Well, don't stop reading here because this "rule" deserves a closer look.

You have heard and read many times something to the effect, "Ride in the left tire track of your lane, otherwise those miles of mid-lane oil sludge will soften your tires and you will fall down. If you ride in the right tire track, a parked car door will fly open and you'll get a door glass sandwich."

It's just not that simple though. In some cases, the oil build-up may be a problem. In the other situation, a car door could very well appear in your path. But these potential hazards do not provide sufficient cause to ride the left tire track on the freeway or on a country road under all circumstances.

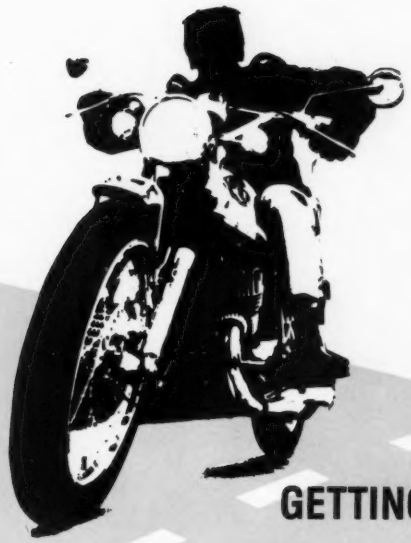
Motorcyclists should use lane positioning to their advantage. Effective lane usage is a good strategy for safe riding. There are four basic reasons for changing your motorcycle position within your lane of travel:

- To make yourself more visible to other drivers;
- To dominate your lane of travel;
- To gain lateral distance from potential hazards;
- To avoid obstacles on the roadway.

MAKING YOURSELF MORE VISIBLE

The first point to consider regarding making yourself more visible is: MORE VISIBLE TO WHOM? Let's first consider oncoming traffic. If all roadways were two-lane, two-way streets, you would spend more of your time in the left tire track in your lane. On two-lane, two-way streets you are more visible to oncoming traffic in the left tire track of your lane. In this case, following distance is equally important. If you are following too closely, an oncoming driver will have his view of you blocked by the vehicle you are following. With respect to oncoming traffic, you are more visible riding in the left tire track.

Now, let's consider your visibility to vehicles headed in the same direction. First, on two-lane, two-way streets, your best lane position is in the left tire track. But let's cloud the issue. What happens when you are riding on a multiple-lane street with two, three, four, five or six lanes all going in the same direction? Now things change a little. Who do you want to see you? The car in front of you in your lane? The car you are passing in the lane to your right? The car you are passing in the lane to your left?



GETTING YOUR SHARE OF THE BLACKTOP

Let's take each situation individually. The car you are following in your own lane is able to see you best in a position from the middle of your lane to the left tire track. In this position the driver is able to see you in both rearview mirrors.

Next situation – you are passing a car in the lane to your right. In this case, your best position is in the right tire track of your lane. From this lane position, the driver you are passing is able to see you in his left outside mirror. If you were in the left tire track of a 12-foot lane, you would not appear in the outside mirror for some time. By riding the left tire track, you are putting yourself in the driver's blind spot longer. Approach to pass at a constant speed in this situation, but don't spend much time side by side with the vehicle you are passing; go faster while passing than while approaching. Watch his front tires as you overtake him and if he starts into your lane, you will have the quickest warning possible. Try, if at all possible, to time the pass so that you are not between two cars.

The only situation left is overtaking a vehicle in a lane to your left. This is necessary many times when riding in the center lanes on a three- or more-lane freeway. When this occurs, your best lane position is in the left tire track. You will be visible in the rearview mirror of the car you are overtaking longer in this position than any other.

DOMINATING YOUR LANE OF TRAVEL

As a motorcyclist in traffic, you are entitled to a full lane. Our next consideration is using lane position to discourage automobiles from crowding into your lane. In reality, if a car wants to come into your lane, you know that he can do it. It's not worth an argument. However, by positioning properly within your lane, you can discourage lane crowding by cars. The situations can be narrowed to two. Being passed on the left and being passed on the right. Let's first consider being passed on the left.

Your best lane position in this case is the left tire track to encourage the car driver to move out of your lane into the other lane until he has gone completely beyond you. If the car driver has moved into the lane of oncoming traffic, be especially alert for him to cut you off when he returns to the proper lane. Be prepared to reduce speed and move right if this should occur.

The next problem is being passed on the right. This occurs frequently on freeways and other multi-lane roadways. Your best lane position in this case is in the right tire track for the same reasons as previously mentioned. This is especially true of a situation when riding in the left lane on the freeway. If you ride next to the median, you are encouraging car drivers to squeeze into your lane with you in it. If oncoming traffic can turn left or any cross-traffic situations exist, remember, you cannot be seen as well from the right tire track if there is a vehicle in front of you.

If you haven't been doing these things in traffic, you have been more vulnerable than you should be. Maybe you have been lucky. Remember to adjust your lane position to be more visible to oncoming traffic, traffic you are passing and traffic that is passing you. Have a riding strategy; make plans for how best to handle these situations as they are developing. Don't just let things happen, make them happen.

That little digression was necessary because the next two points are slightly

continued

different considerations for the same rider adjustment – selecting the best motorcycle position within your lane of travel.

TO AVOID OBSTACLES IN THE ROADWAY

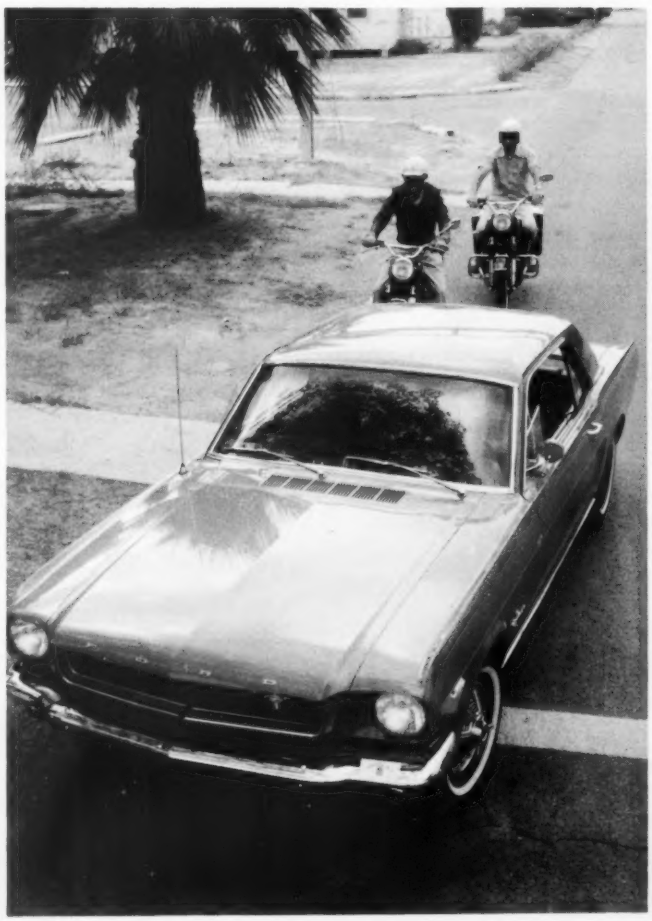
This consideration usually indicates that you should be in one tire track or the other because car tires tend to keep this portion of the roadway clear. Usually true, but not always. In heavy traffic it is difficult to scan the roadway surface because of the congestion. You are better off under these conditions to spend as much time as possible in one or the other tire track. When you have good sight distance, you can very safely ride in the middle of your lane, based on considerations already mentioned in this article.

TO GAIN LATERAL DISTANCE FROM POTENTIAL HAZARDS

This is nothing but a fancy way of saying, "Give possible hazards more room." Simply stated, this point is a matter of looking ahead for hazards that might develop and then taking advantage of the motorcycle's narrow width to avoid the situation. Simple situations like parked car doors opening, cars crowding center lines, cars passing at blind crests of hills, and cars crowding your lane at intersection crossings are obvious. Not so obvious are situations such as the negotiation of curves on two-lane, two-way streets. Car drivers have a tendency to either straighten out curves or take them wide occasionally, and as a motorcycle rider, you are better off in keeping to the middle of your lane away from the possibility of a car crossing the center lane.

All this has probably given you a lot to think about – some will say too much. But if you practice these skills as you ride, you will be applying safe riding strategies. You can't stay in the left tire track on all occasions and do your best to ride safe.

(Reprinted courtesy of AMA News)



"Dominating your lane of travel" applies to slow speeds and turning lanes as well as highways. These two guys have been cut off because they didn't take command of their lane.

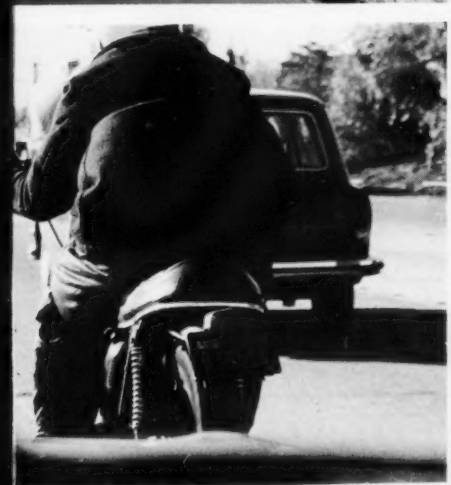
Riding in the left tire track is usually a good procedure. You make yourself more visible to both oncoming and following traffic. (Rider on left is *not* a serviceman.)

(left)
Don't attempt to pass until vehicle in front of you has completed his passing maneuver. You may find yourself with no place to go, or worse, you both may try to occupy the same space at the same time.

(left)
Alter the "left-hand track" rule to fit the situation. Rounding a curve in the center of your lane leaves plenty of lateral escape room. Oncoming cars may try and take their half of the road out of the middle.

(bottom left)
Wrong lane position, cutting too close to car in outside lane while passing, riding too near the rumble strip . . . what else can he do wrong?

No way can you pass safely here. Wait until cars are no longer side-by-side, and wait until outside lanes have completed passing.



FORECAST:

RAIN

In winter, the driver worries about ice and snow on the roads. But far more fatal accidents occur in rainy weather on pavements that are simply very wet.

Do you know what the tread on a tire is for? A lot of people think it's for traction on dry pavement. But actually, *slick* tires will stop you in the shortest distance on a dry road. The tire tread's main job (besides reducing operating temps to give long mileage and a few other tasks) is providing traction on *wet* surfaces.

So anytime a driver begins to think about traveling in rainy weather, the first thing he has to consider is the condition of his tire tread. The reason is something called hydroplaning.

HYDROPLANING

If you're a TV fan, you've probably heard a lot about hydroplaning lately because one of the major tire companies has been running a commercial with excellent pictures that show exactly what hydroplaning is. If you missed it on the tube, here's a simple description of how your car turns into a big water ski.

Two things must be present for hydroplaning to occur. First, there must be enough water on the pavement. If the water on the road casts reflections from tires, telephone poles, or other cars, or if raindrops "dimple" the water's surface, you can be fairly certain hydroplaning conditions are present.

Second, the vehicle must be moving fast enough so that a wedge of water can build up under the tires until they actually ride on the water (hydroplane) with little or no contact with the road. A standard-size car with good tires, inflated to recommended pressure levels, may start to hydroplane at 35 mph on a fairly wet road.

The dangerous thing about hydroplaning is that you can drive along for some time without realizing your tires aren't in constant contact with the road surface. You find out the hard way, when you have to maneuver – slow, turn, move out to pass – or if you get hit by a gust of wind. Then, you're suddenly out of control.

The conditions that might make hydroplaning possible vary with each individual road and driving situation. If the road is sloped or grooved so that water runs off quickly, if the tires have deep tread so that water escapes quickly through the tread channels, if tire pressures are adequate, if the speed isn't too great for the amount of water present, then you're not going to worry. But if your tread is worn, if the pressure in one or more tires is low, and if there's enough water present, you're almost certain to be in trouble.

continued

(left)
Windshield wiper blades go bad fast. Check yours often. This little blade is all that keeps you from being blinded in a heavy rain.
(Photo by Aerospace Audio-Visual Service)

Accumulated water like this acts as a brake. If you hit it too fast with just one front wheel, the car can swap ends.

When the rain first begins, the street will be very slippery. The water is mixing with accumulated oil and dust to make a paste. A skid is coming up if you don't slow down!

The skillful driver slows down when it's raining because he understands what's going on between his tires and the pavement.

VISIBILITY

Visibility also can be a minus factor in the rain. It is more difficult to see in rain than in the dark on a clear night. What you see through the rearview mirrors may be distorted by raindrops on the outside mirror and rear window. So, take an extra look and double check for hard-to-see vehicles coming up behind.

If you're having trouble seeing other traffic, they're having trouble seeing you. Turn on your lights. Drivers should take a tip from motorcyclists and think of their lights as a means of attracting attention to themselves. Use your headlights, never parking lights.

Replace windshield wiper blades just as soon as they show signs of streaking, missing areas on the windshield, or when strips of rubber start to separate at either end of the blade. If you haven't been a car owner very long, you might be surprised to see what a summer of hot sun does to the rubber. Your blades may be completely shot even if you haven't used the wipers in months.

With wiper blades in good shape, a heavy rain can still partly obscure road sign and traffic signals, pavement markings, the edge of the road, even pedestrians. Be alert. Road spray from other cars can coat your windshield with a fine opaque coating, even after the storm is over. This is a good reason to keep the windshield washer reservoir filled. Road spray can be more obscuring than rain because it's dirty.

The heating-defrosting-defogging equipment is great for clearing moisture from the inside surface of the glass. If you're not positive how it works in various situations, check the owner's manual.

BRAKES

Accumulated water and big puddles can cause problems if you drive through at too high a speed. For one thing, the water can affect brakes on many cars. So you should try to avoid standing water, but if you can't, at least reduce speed. Once you're clear of the water, lightly apply pressure to the brakes. If the car pulls to one side or the brakes are less effective than they should be, make several light applications keeping in mind the traffic behind you and allow the heat from the friction to dry the brake linings or pads.

If you must drive through a large area of water, you might lightly place your left foot on the brake pedal while accelerating with the right. This helps keep water from the brake linings. But if you haven't done this before, practice in good weather at slow speeds when no traffic is around. Some people may be a little clumsy the first time they try to do something with their left foot that they normally do with their right.

SLIPPERY PAVEMENT

When the first drops begin to fall, the smart driver slows down because he knows almost immediately he will not be able to stop as fast or accelerate as crisply as he could on the dry road. When it rains after an extended dry period, the water mixes with dust and accumulated oil dripped from vehicles onto the road surfaces and forms a slippery mixture. The road can remain slippery until enough rain has fallen to wash away the mixture. How long this takes depends on how hard it rains and how much accumulation there is on the road. The point is, it's always wise to reduce speed and become very cautious if it starts to rain while you're driving. Just the fact that the surface is suddenly wet, and your reflexes are tuned for driving on dry pavement, should be enough warning to slow down.

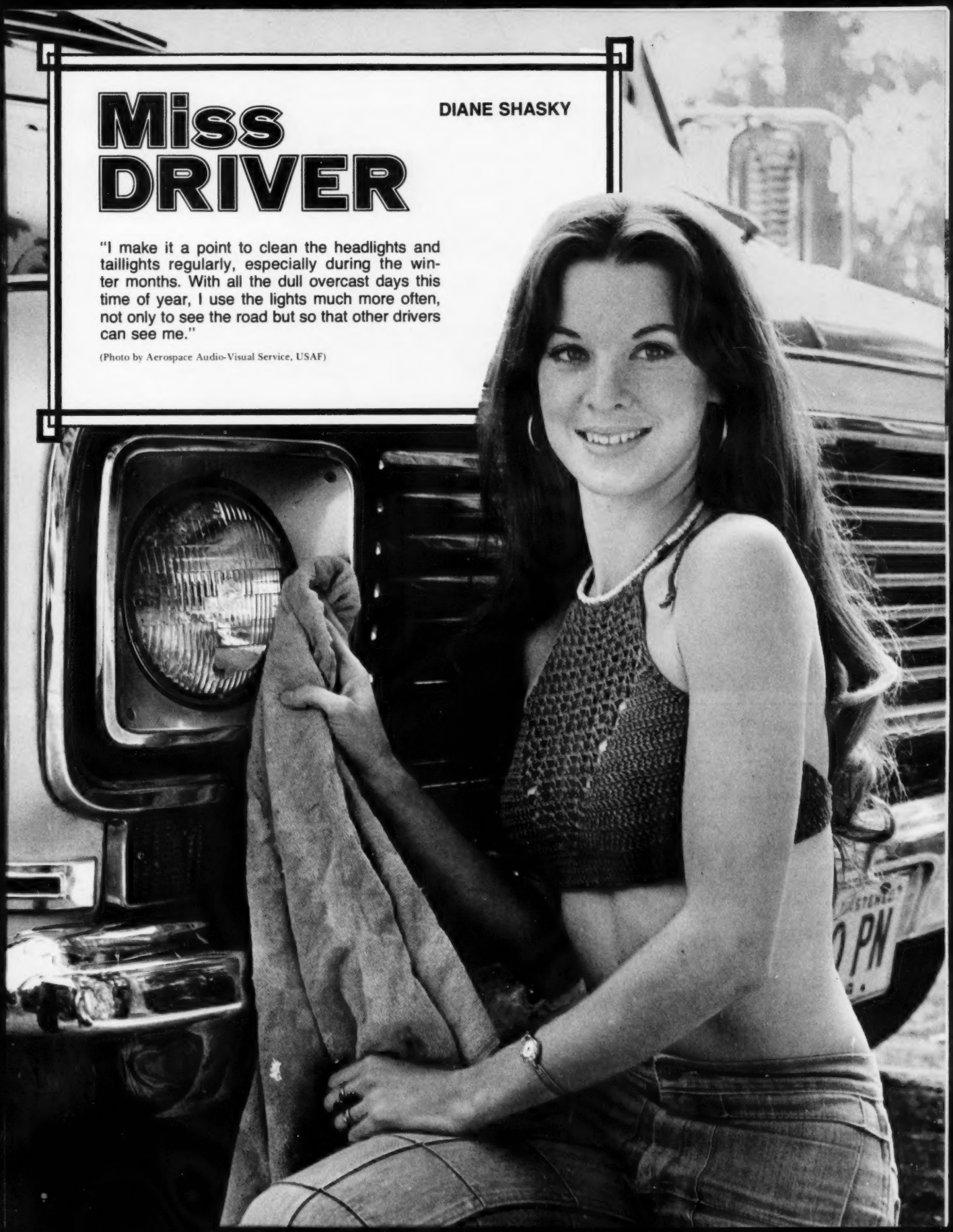
There's nothing fun about driving in heavy rain. That pain in your neck is tension building up. But with good tires, good windshield wipers and defogging equipment, and with a good head on the driver, it can be perfectly safe. Even if you do your driving in Portland or Seattle, it's bound to stop raining. Eventually

Miss DRIVER

DIANE SHASKY

"I make it a point to clean the headlights and taillights regularly, especially during the winter months. With all the dull overcast days this time of year, I use the lights much more often, not only to see the road but so that other drivers can see me."

(Photo by Aerospace Audio-Visual Service, USAF)



PONTIAC
MID-WAY PONTIAC

Jacked BACK

Are short bursts of straightline speed and sleek looks worth the penalties paid when you modify a vehicle's suspension systems?

There's lots of space under this Ford's trunk which has been elevated by inserting 6-inch lengths of channel iron between the chassis and the outer ends of its leaf springs. Its high school student owner said he raked it to increase the car's drag racing capabilities but was unaware of the penalty he was paying in handling characteristics.

Exposing a vehicle's gas tank by hiking up its body is an open invitation to fire and possible explosion if someone smacks it from the rear. Most front bumpers will slide right under this car's rear end.

A simple demonstration in the San Bernardino Valley College auto shop shows what happens to the center of gravity and steering geometry in any car when its rear suspension system is altered. At left, the aft end of an Olds Cutlass is raised a max of 11¼ inches by a hydraulic jack. At right, the instructor measures to find that raking has changed the camber ⅜ of a degree and caster 1¾ degrees in each front wheel, enough to wreck any vehicle in a panic stop or cornering situation.

"Far out, man! F-a-a-a-r out!" E-3 Jerry Williams backed off from his '69 Plymouth Roadrunner, eyeing its sloping profile with the feelings of pride and accomplishment that only a car owner who does his own mod work can fully appreciate.

"Look at that rake, Tom," he boasted. "Eleven inches higher in the rear than the front."

Jerry's buddy had to agree. "Yeh, man! That's statutory rake!"

Tens of thousands of drivers have altered the suspension systems of their vehicles for a sleeker appearance, for drag racing, or both. That's probably why thousands more will unwittingly follow suit unless they know the facts.

To understand why modifications to the suspension system of any street car, either by an amateur or a professional mechanic, are dangerous, one needs to understand the purpose of suspensions.

Suspensions have two functions: (1) Absorb the shock of sudden upward or downward movements of wheels and axles; and (2) push the wheels back down on the road again where they belong.

If cars didn't have suspensions, wheels would bounce free at every bump without any force except gravity to bring them back to the road surface.

Suspensions are more than springs and shock absorbers. They are A-arms, links, traction bars, sway bars, shock absorbers, and a lot of little supporting bits and pieces.

As a tire bounces upward, the spring pushes the wheel back onto the road. The shock absorbers damp the harmonics of the vibrating springs. A-arms allow the wheels to move without a major movement of the entire automobile; they also dictate the geometry of lines of motion of the wheels.

There are two basic types of suspensions – live and independent. Live suspensions are of the solid-axle type in which most of the upward and downward motion of one wheel is transmitted to the opposite wheel. The independent suspension, as the name implies, allows movement of one wheel without affecting the other one.

Blocking or jacking up a vehicle's butt end is a relatively simple job, and it doesn't take a month's paycheck to do it. But what it does to the performance

continued

and handling of your car isn't worth any tab – not even if it's free.

Most drivers used to insert 2- to 6-inch lengths of channel iron between the chassis and the spring eye location on cars with leaf springs, or insert spacers at the upper links holding the axle on autos with coil springs.

The big thing nowadays, however, is to buy an expensive pair of air shocks, pump 'em up to max or near-max pressure and, SHAZAM!, your "customized" dragster has an eye-catching, girl-pleasing rake. Some drivers even combine both methods, while others go all the way by also modifying the front suspension system to make the nose ride even lower.

The "smart" ones – mindful of what happens when you bottom out in a dip or fly over a bump, thereby forcing the shock absorber arms to suddenly reach their full length – add shock extensions. They incorrectly assume this will compensate for the vehicle's extra height.

Of course, the primary reason most hot car fans jack up their cars is not for looks alone but for dragging. Raising the car's center of gravity (CG) throws more weight on the rear wheels, thereby improving the car's straight-line acceleration capability.

OK, so what's so dangerous? After all, racing pros do it! They sure do. But you can bet they rake their racers for a totally different reason than do street drivers.

David Pearson
Grand National Stock Car Champion

"The only reason we run high rear ends," Grand National Stock Car Champion David Pearson told DRIVER, "is because at extremely high speeds, the car actually lowers as a result of air pressure pushing down the rear and lifting the front.

"On the highway you can't safely get around a corner if the rear end has been raised. The manufacturer delivers a car properly set up, and it should be left that way."

Here's what happens to a car when you hike up its tail beyond the factory design limits (a couple of inches).

First, you change its CG, moving it higher and forward (even higher if you drive a van), and alter its roll center.

Second, you screw up the harmonics of the rear springs in conjunction with the shocks and axle.

Third, you louse up the geometry of the steering system.

Fourth, you line up and expose the vehicle's gas tank to almost certain fire and possible explosion if someone rear-ends you.

That last point should not be taken lightly. The fuel tank in most cars normally has the protection of the rear bumper, rear sheet metal, and the stiffness of the rear frame members. Protection is reduced, however, when the rear end is raised and the tank is exposed to direct impact by a striking vehicle.

A blocked or pumped-up rear end alters the drive line angle, which can cause U-joints to run in a binding manner. This in turn causes a strain on the transmission extension housing bushings.

Under normal braking conditions, the front of a car goes down and the rear up. But when it's raked, the front brakes get extra punishing, and in a panic stop the front end can actually dig into the pavement.

The greatest problem associated with altering suspensions is the drastic deterioration a vehicle suffers in handling characteristics. A boosted tail radically changes the operating camber and caster angles of the front wheels and consequently the steering geometry. And with the CG having been moved upward and forward, it can now swap ends in the bat of an eyelash while cornering or stopping. The outer edges of the front tires also get a constant scrubbing during turning maneuvers.

Extra heavy wear occurs to front suspension system components and, if your shocks aren't properly adjusted or you've installed spacers in the springs, you'll fishtail during acceleration.

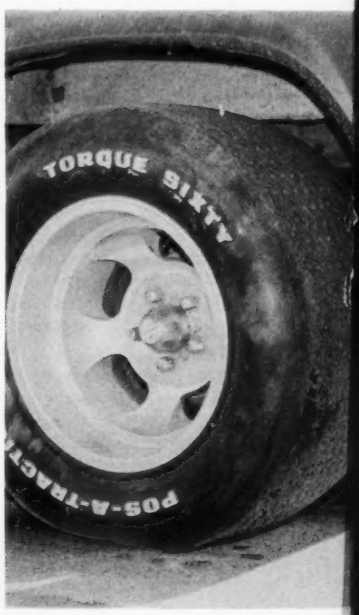
Richard Petty
Grand National Stock Car Champion

Veteran racing favorite Richard Petty, Grand National Stock Car Champion, advised against modifying street cars.

"Many people who do really don't understand physical laws," he explained. "The car was built to run at a certain height spring-wise, steering geometry-wise, and for weight transfer in the corners. Anytime you block the car up or lower it, you are going against how the car was actually designed to maneuver. It's just not a safe practice."

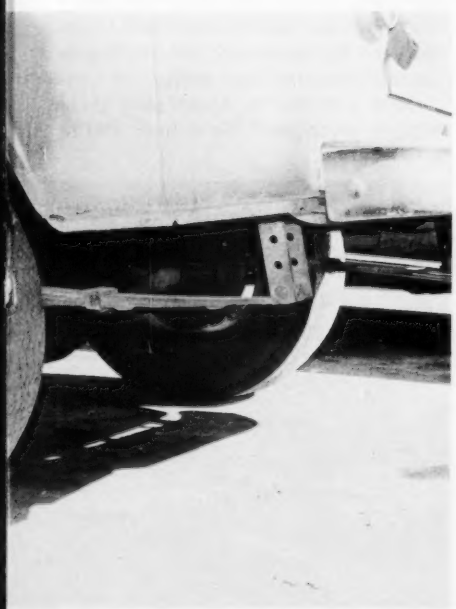
National accident statistics point up the many dangers created by juggling a vehicle's suspension system, but the practice continues to be commonplace in all but a few states with strict laws against it. The fact that large numbers of otherwise sharp drivers are still willing to sacrifice normal steering control for brief spurts of straight-line speed, makes pros like Pearson and Petty ask a simple question:

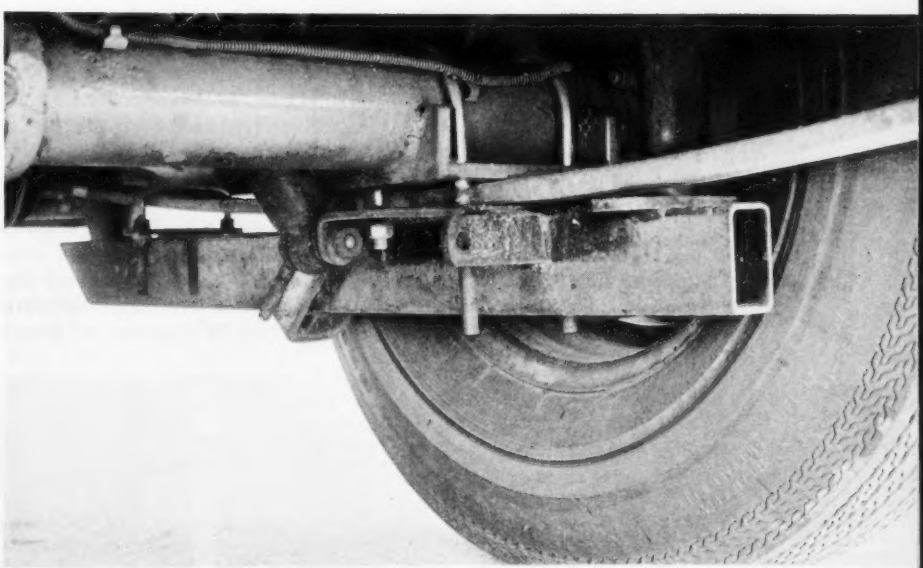
Who's getting raked?



Proud of its sleek appearance, the owner of this raked Plymouth Roadrunner nevertheless admitted that in the past year bad effects from altering its rear suspension with air shocks had forced him to replace both tie rod ends, idler arms, and lower control arm bushings on the car's front end. He hadn't had an accident yet, he said.

(below)
Because vans have an extra high center of gravity and they're driven into places and under conditions designers never dreamed, manufacturers have had to come up with special improvements in their steering, suspension, and brakes. These helps are all lost, however, when stilts like this one are installed to raise the van's tail, supposedly to improve its performance.





Traction bars control wheel hop caused by axle wind-up. If your car has a jacked-up rear end, you may want to consider installing such bars to assist in controlling axle tramp.

EVER HAD TO DODGE A CAR OR TRUCK, EVEN A BIKE, TO KEEP FROM BEING RUN OVER?

Pedestrian Ping Pong

This is for people who do a little walking or jogging now and then. You know – like shopping, exercising the dog, visiting around the neighborhood, maybe loping a mile or two to keep the weight down. In other words, this article is for everybody.

Did you know that 20 of each 100 traffic fatalities in the United States are people *on foot?* It's true, yet few of us think about our safety as pedestrians. After all, those motorists are supposed to watch out for us. Right?

Right. But almost everytime a driver runs into a pedestrian, the first thing he says is, "I didn't see him!" In fact, one study of nighttime pedestrian fatalities showed that in a quarter of the accidents, the driver didn't know a pedestrian was even out there until the impact.

So, regardless of who is at fault in these accidents, it's the fellow on foot who can do the most to prevent them. He can do it in two ways: By making himself highly visible to the motorists, and by practicing a few simple rules everyone of us learned when we were in the first grade.

First, the rules. See if you don't remember them from your peanut butter days.

"*Always walk on the left side of the road toward oncoming traffic.*" (Walk on the right side in the United Kingdom, Japan, and other countries where motorists drive on the left side.)

Now there are simple reasons for this centuries-old practice. For one thing, the pedestrian can see what's coming toward him at all times and can jump out of the way of traffic if necessary. Second, the motorist bearing down on him can see him better, can attract his attention by honking his horn or flashing his headlights, can more accurately predict what the pedestrian will do, and, if necessary, can more easily maneuver his vehicle to avoid striking him.

Another cardinal rule we all learned as youngsters is:

"*Always stop and look first to the left and then to the right before crossing a thoroughfare.*" (Just the opposite in countries where vehicles are driven on the left side.)

And then, as we grew older, we were taught how to identify traffic control signals and signs and to obey them. We also were advised to use pedestrian crosswalks, to cross streets at intersections, to wait for buses and street cars in posted safety zones, and to get into and out of parallel parked vehicles on the side away from traffic.

How well do we adults obey these simple principles? Next time you're

driving, observe the pedestrians. A lot of dangerous stuff going on, isn't there?

It's been said that navigating the average street or highway on foot is like a game of ping pong. Every pedestrian is a little round ball and every vehicle is a paddle. Just don't get caught in the ricochets!

To get some fresh ideas on how not to get trapped in a game of ping pong, DRIVER looked around for an expert on pedestrian safety. The answer to our search was so obvious, it surprised us. Our "expert" had never been interviewed on the subject before in her life!

QUALIFICATIONS OF AN EXPERT

Sherry Segrist is a young housewife who lives with her carpenter husband, Larry, in a mobile home on a 3-acre "ranch" in the rolling hills near Hemet, California. A century ago it was the site of a stagecoach stop on the historic Butterfield line. She and Larry have three riding horses, three dogs, a cat, and a finch. They also have a camper pickup and a 1973 Kawasaki 900 motorcycle for weekend outings.

Sherry commutes between the trailer and Hemet eight miles away, hops a bus to Riverside another 35 miles distant, transfers to a second bus, walks through a shopping center to a class in fashion modeling, then retraces her steps home each day.

This is considerably farther than the daily travels of an average housewife, but that's not what makes Sherry an "expert." Not until you see her with her beautiful German Shepherd dog, Brenda, from International Guiding Eyes, do you realize she's blind and that walking safely is her "thing."

"I used to take walking for granted," recalls 22-year-old Sherry, who lost her vision just two years ago, six months after her marriage to Larry. "I know now how important it is for people to remain alert – that's the most important thing for pedestrians to do."

"Parents should instruct their children more on how to behave on streets," she says, reflecting on her own high school days when "we didn't care which side of the street we walked on or even if we walked four abreast down the middle."

Sherry thinks boys and girls and some young adults on skate boards and bicycles should be more careful of pedestrians' rights. "They ride down the sidewalks expecting you to get out of their way," she said.

PEDESTRIANS VERSUS CYCLISTS

"And people who ride motorcycles should really be alert," she adds. "It's sometimes hard for a pedestrian to see a cyclist, and the pedestrian will step right out in front of him."

"Pedestrians often think they have the right of way when they step off the curb," Sherry relates. "But whether they do or not, drivers don't or can't always stop for them. It's up to pedestrians to watch out for cars and bikes if they don't want to get hit."

What about walking in the dark? A foolish question for a sightless person? Not necessarily. Sherry thinks people should always walk as if they can't be seen. Because she never knows for sure if motorists can see her, she relies completely on her sense of hearing and on faithful Brenda to keep her out of the paths of errant motorists. "And it works," she says. "Caution really pays off."

Military pedestrians aren't always as cautious as Sherry. Six percent of the Air Force's traffic fatalities last year were pedestrians. Most of them were hit at night, usually on open highways, and several had been drinking before being struck down. These figures are believed to be representative of all the Armed Services.

PROTECT YOURSELF

Since about 55% of all pedestrian fatalities in the nation occur after dark, this leads us back to our first conclusion on how pedestrians can best protect themselves. Other than remaining alert, the smart way to walk tall is to walk "light."

First and foremost, wear light-colored clothing. But this isn't enough as the illustrations graphically show. No man, woman, or child – without exception – should ever walk on or across a street or highway at night without making himself more visible to traffic through the use and wear of retro-reflective materials.

A big order? Of course, but more and more people – especially in Europe – are getting with the program. And if annually increasing sales of retro-reflective materials in this country are any indication, Americans are not far behind.

How does retro-reflection work to save your life? Quite simply, retro-reflective materials are usually composed of millions of tiny glass beads, or are prismatic. They return the light from vehicle headlights directly back to the driver, similar to materials used to produce license plates and street signs. Although the person wearing the material can't see the reflection, the driver sees a brilliant, reflected signal.

DO-IT-YOURSELF EXPERIMENT

To see for yourself how this principle works, hold a flashlight at eye level in a dark room and point it toward some retro-reflective material. The light will shoot straight back to your eyes.

This type of material does not glow in the dark nor is it the fluorescent day-glo bright red or orange so many people mistake for retro-reflection. Fluorescent material offers bright daytime visibility but at night is no more visible than ordinary colored clothing. Don't be confused. Fluorescent and retro-reflective materials are equally important to being seen, especially to pedestrians and cyclists, but each in its proper light period.

continued

(left)
Sherry Segrist enjoys shopping with her loyal German shepherd, Brenda. Although sightless for the past two years, Sherry has not let her handicap prevent her from getting around town, going to school, even horseback riding. "The most important thing a pedestrian can do for himself," she says, "is to remain alert to traffic," a commonsense practice at which she's now an expert.

AT WHAT DISTANCE WILL YOU BE VISIBLE TO MOTORISTS AT NIGHT?

Dark Clothing	55 Feet
Red Clothing	80 Feet
Yellow Clothing	120 Feet
White Clothing	180 Feet
Clothing Trimmed with Retro-Reflective Materials	500 Feet

OK, so we've sold you! Where can you get these retro-reflective materials? They come in a variety of forms and colors such as sew-on reflective fabric, iron-on transfer films, stick-on shoe sole reflectors, reflective safety tags to pin on or dangle by string from your clothes, fluorescent-reflective armbands, and reflective elastic silver armbands and neckbands.

WHERE TO FIND REFLECTORS

Minnesota Mining and Manufacturing (3M) Company is one of the world's largest makers of industrial and personal reflective materials. Theirs along with other products can usually be found in drug, variety, department, fabric, hardware, and discount stores, auto parts and speed equipment shops, bike shops, some base exchanges and ship's stores, and even supermarkets. If your favorite retail or military store doesn't have what you want yet, urge the manager to stock it.

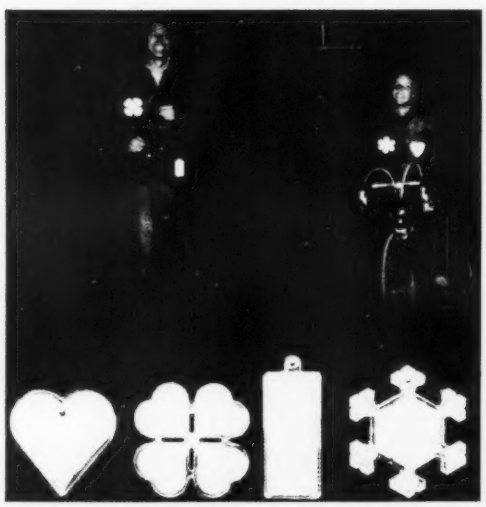
A shopping pointer: *Reflective fabric* can be sewn, ironed, or stuck on clothing only. If you want to reflectorize hard surfaces such as bicycles, motorcycles, helmets, etc., buy *reflective tape*.

Still not convinced that you *really*

Pedestrian on the left, wearing standard clothing, and the woman on the right, wearing clothes and carrying an umbrella each sewn with retro-reflective trim materials, were photographed from 50 feet with light source 50 feet away. Even this close, walker at left is difficult to see.

Now, 200 feet away from the camera and light source, the pedestrian on the left has completely faded into the darkness. In sharp contrast, the retro-reflective materials used by the woman on the right, make her presence clearly visible to motorists.

Using designated crosswalks when available is the safe way to cross intersections. Despite this fact, three out of every 10 pedestrian injuries and fatalities in the nation occur at intersections. Four out of 10 occur when persons enter or attempt to cross thoroughfares between intersections.



Scandinavian Talmu reflectors, widely used in Europe, are now going on the market in the U.S. for use by bicyclists, school children, joggers, and other pedestrians. A plastic device about 2½ inches in diameter, it is kept in a pocket and simply pulled out to swing and spin by its string when riding or walking in the dark. Said to be five to six times more reflective than retro-reflective fabric and tape, the unique item retails for about 75 cents.

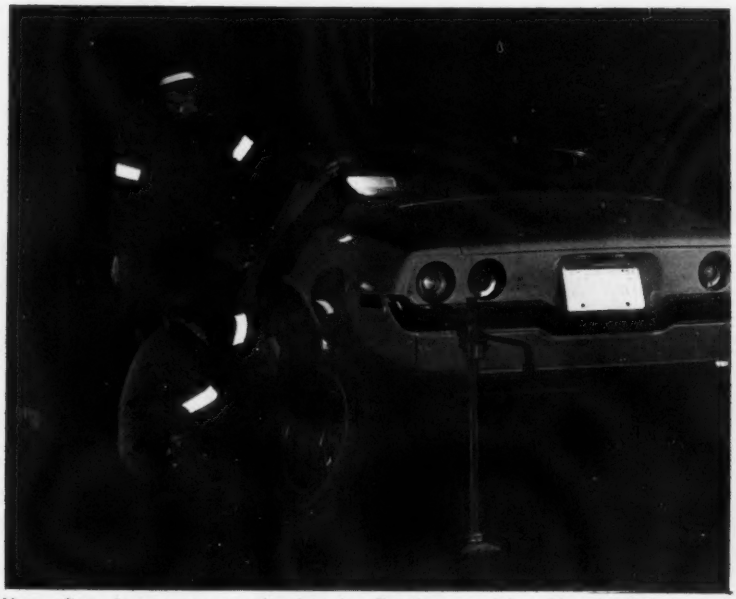
need to improve your visibility after dark when your chances of being hit by an auto are five times greater than in daylight? Then consider the fact that most pedestrians incorrectly assume drivers can see them in the dark because they can see the vehicles.

Tests of 1,700 pedestrians under actual night driving conditions disclosed they thought they were visible to oncoming motorists at an average of 343 feet. The drivers, however, actually were able to see the pedestrians at an average of only 175 feet.

Now, when you realize that it takes 260 feet for the average car to stop at 60 mph under perfect road conditions, and that a pedestrian is visible at only 180 feet even with all-white clothing, you quickly see why we're on your case about getting "reflective"!

Brand or company names and products mentioned or pictured do not represent endorsement by DRIVER or the U.S. Air Force.

(below)
School children frequently have to walk to and from school in darkness or near-darkness during winter months. Elastic armbands made of Scotchlite reflective materials should alert any motorist to the whereabouts of this young boy and his sister.



How often do you see people changing flat tires at night with only their hazard lights and reflective license plate to point them out to speeding traffic? How much better it would be if they also wore reflective elastic armbands like this driver and his girlfriend (who also has a reflective headband).

Halloween goblins aren't near as scary as the drivers who frequently can't see them darting back and forth across darkened residential streets. The parents of these "trick or treaters" were concerned enough about safety, however, to decorate their costumes with reflective beaded garment tape, making it easy for any motorist to spot them in his headlights.

Sole reason for these photos is to illustrate what a little (1x1¾ inches) piece of reflective tape stuck on the bottom of each of your shoes (left) will do for your visibility after dark (right).

Mazda minor mechanicals . . .

So you want to do a tuneup, hmmmm?

THE BACKYARD MECHANIC

NSU-Wankel has had a rotary engine car on the market for quite a while, but it took Japanese technology to make the Wankel an acceptable automotive powerplant. Mazda's rotary engine solved the problems of premature rotor apex seal wear and abominably poor fuel economy. Today's Mazda is a powerful, fairly fuel efficient, sporty family car. But, like any car, it needs a tuneup occasionally to make it perform as designed.

If you missed the Jan '72 DRIVER, let's briefly cover why the Mazda rotary is different from conventional piston engines.

In plain talk, the power that moves your car comes from the energy released by the combustion of the fuel/air mixture. This power forces the pistons down to turn the crankshaft. Here's where the conventional engine falls short; reciprocal motion can't move the wheels. It must be converted to rotary motion by means of a crankshaft and assorted components.

Why not create rotary motion in the first place? Rotary power can directly drive the wheels and eliminate about 50% of the moving parts needed in a conventional engine.

In place of pistons, the rotary engine uses a three-cornered rotor spinning in an air-tight chamber. Combustion is provided by two spark plugs per chamber to insure complete burning, and takes place between the rotor face and the chamber wall. All three sides of the rotor are operational at the same time, meaning that one revolution of the rotor causes three power pulses. So, the combined combustions of a two-rotor engine equal the power strokes of a six-cylinder conventional engine.

Whatever the engine, if you've ever stalled at an intersection or on some train tracks, you can see why a tuneup is beneficial, not only from an economy standpoint but also for survival.

Well, now that we know the basics, let's pop the hood and see what a rotary engine looks like externally.

OH, NO!

That's the reaction of most Mazda owners when they open the hood for the first time. They see four spark plugs in what is supposed to be a two-rotor engine, two distributors, three sets of points on some models, three condensers, and spark plugs with two electrodes. Not exactly what you'd expect, but variety is the spice of life, right? Don't despair though, just look at the photos and read the text . . . we won't lead you astray.

Now, let's get to the good stuff . . .

continued

TUNE-UP SPECS — RX2 and RX3

Plugs			Plug Gap	Point Gap	Dwell
	STD	COLD			
Nippondenso	W-22EA	W-25EA	.031/.035	.018 in.	58 ± 3 degrees
NGK	B-73M	B-83M	inch		

Timing			Set at . . .
Leading Dist.	(L)	normal	TDC (Top Dead Center)
Trailing Dist.	(T)	normal	10 ATDC (10 degrees after TDC)
Leading Dist.	(L)	retarded	10 ATDC (10 degrees after TDC)

Idle Speed		
Manual transmission	900 rpm	engine warm/transmission in *drive*
Automatic transmission	700 rpm	

NOTE: The spark plugs listed above are specified by Toyo Kogyo Co. LTD., and should *not* be substituted. Plugs should also be changed in sets of four only.

Fig. 1

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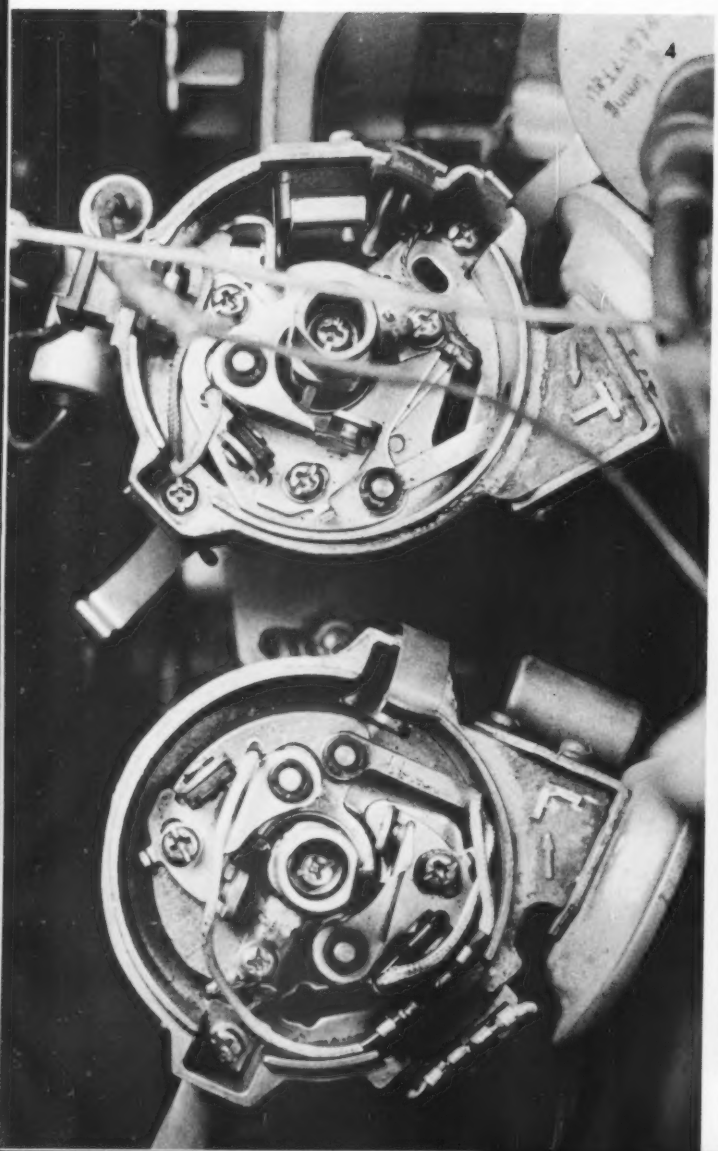
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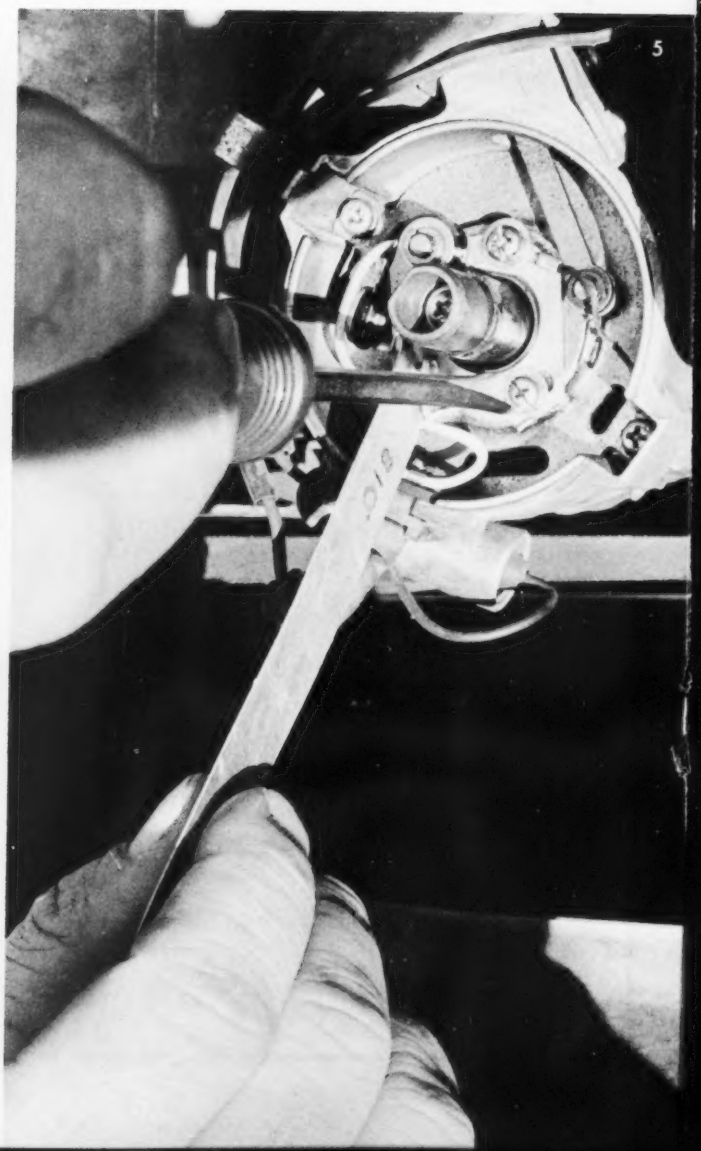
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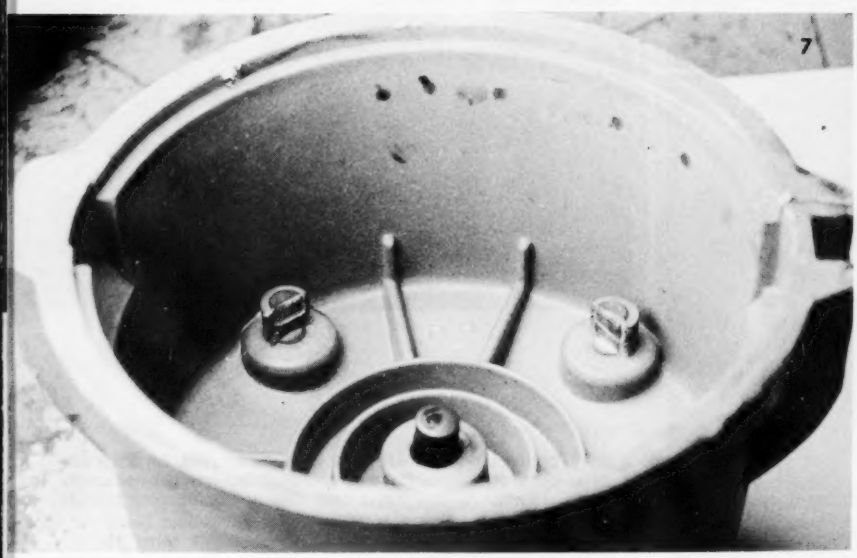
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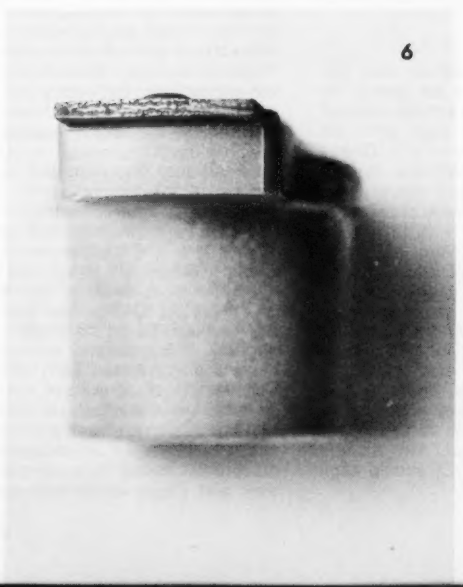
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(Pic 1) Making sure you note which wires connect to which spark plugs, remove the plugs and examine them. This picture shows the plugs we pulled from our borrowed Mazda . . . they are (a) worn, (b) burned, (c) of different types, and (d) the wrong heat range. If your plugs are burning white like this, replace them with a colder plug. Plugs should be checked and cleaned every 4,000 miles and replaced every 12,000 miles or 12 months.

(Pic 2) Since the plugs are a dual, flat-gap electrode type, they must be adjusted with a *WIRE* gauge. Use of a flat feeler gauge will result in super-inaccurate readings. Measure gap as shown here, checking gap between electrode center and center conductor. Gap should be between .031 and .035 inch. If you're into metrics that's .81 mm for a good setting. Replace the plugs using new gaskets (washers) and torque to 10 foot-pounds. Double check for sequence and reinstall wires.

(Pic 3) Most Mazda models are equipped with two distributors. One operates the leading set of plugs, the other distributor operates the trailing set. As you can see in this photo, the distributors are clearly marked "T" for trailing, and "L" for leading. The leading distributor on some models has two sets of points in it. All the point sets are gapped the same, but remember that third set of points . . . we'll explain their purpose later.

(Pics 4 & 5) We're assuming you're replacing the points instead of just a checky-check, so proceed thusly; unfasten the clips holding the cap on one distributor. Leave the leads attached. Remove the rotor and check it for pitting or corrosion, replace if necessary. Remove the points by loosening the two screws that secure the point set. Install the new points and semi-tighten the attaching screws. Rotate the engine until the point rubbing block is on the highest part of the point cam lobe. Using the flat feeler gauge, adjust the points to .018 inch. Tighten the screws and reinstall the distributor cap. OK, now go on and do the other distributor using identical methods and specs.

(Pic 6) This rotor needs replacement. Note that it is pitted and burned. Even a rotor that has only a few thousand miles on it will be slightly pitted, but this one has had it.

(Pic 7) This inside view of the distributor cap shows the condition of the high voltage lead contacts. Like the rotor, these contacts don't stay like new for very long, but when they reach this stage the cap should be replaced.

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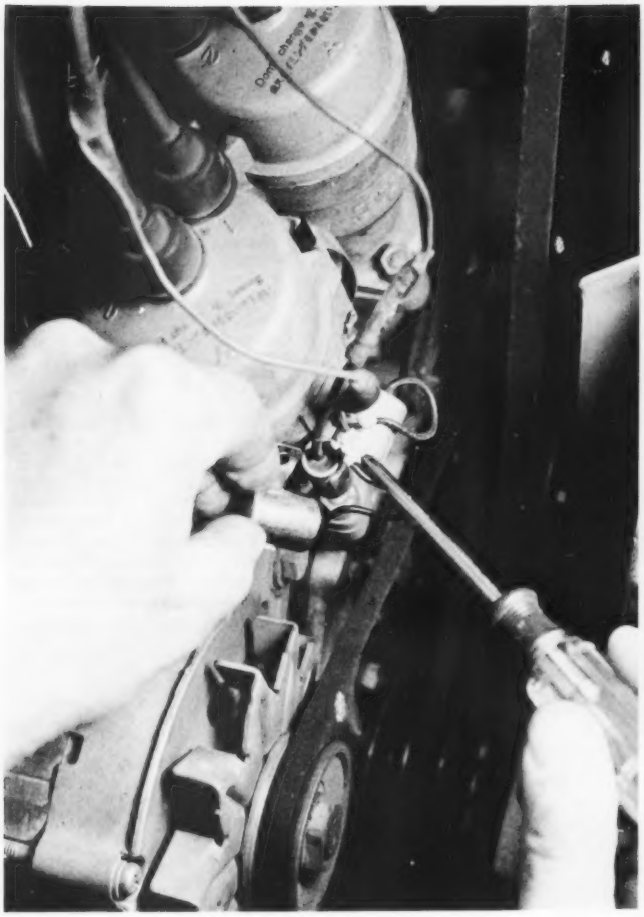

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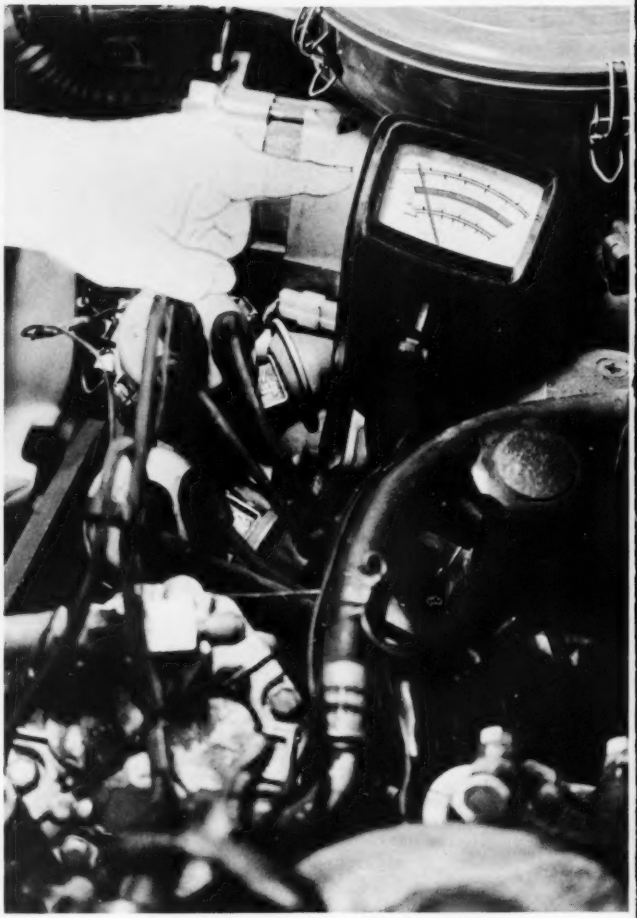

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(Pic 8) The condensers should be replaced whenever the points are changed. The smaller condenser that is mounted next to the ignition condenser is for radio noise suppression and only needs to be replaced if a clicking or popping noise is heard in the radio.

(Pic 9) When you check the dwell (amount of time points remain open, measured in degrees) remember to make separate checks for each distributor. To check dwell, disconnect the vacuum line from the distributor and plug it with a pencil or somesuch. Connect the dwell meter IAW manufacturer's instructions. With the engine running at idle, check the reading on the dwell meter (always watch out for hands and fingers around a running engine). The meter should read 58 degrees, but anything between 55 and 61 degrees is OK. If the dwell reading is not within these specs, you'll have to readjust the set of points in the distributor you're checking. A high dwell angle means the point gap is too small, a low dwell indicates the points are too wide open. If you can't get both the gap and dwell to fall within specs, you can be pretty sure that you have a worn distributor cam, a bent contact arm in the point assembly, or a worn or incorrect rubbing block on the points. Don't forget to unplug and reconnect the vacuum line after you've removed the dwell meter.

(Pic 10) Dwell was checked on each distributor, and the same goes for setting the timing . . . each distributor must be adjusted separately but you must *start* with the *leading* distributor (marked "L"). Check timing light hook-up methods in the manufacturer's manual, and hook up to the leading distributor spark plug cable that goes to the number 1 (front) rotor. Start and idle the engine. Aim the timing light at the timing indicator dowel on the front of the engine. The yellow mark (0 degrees or TDC) should align with the indicator dowel. If it doesn't, loosen the distributor hold-down nut located at the base of each distributor and rotate the distributor slightly until the marks do line up. Tighten the lock nut and recheck timing. Same procedure applies to the "T" or trailing distributor except the orange mark (10 degrees after TDC) should align with the timing dowel.

(Pic 11) Now let's get to that third set of points that some of the models have. (If you have only two sets of points, don't worry, you've saved yourself a bunch of work.) The purpose of this third set of points is to provide an extremely retarded timing mode for meeting emission specifications during engine warm-up. This retarded timing method is adjusted in the following manner: Disconnect thermosensor connections. Both automatic and standard transmission models have one sensor mounted on the engine (see pic. 12) while the standard transmission models have an additional one mounted on the lower portion of the transmission. These sensors tell the retarded timing mode when to kick in and when to kick back. Detach vacuum line and electric choke switch connecter. Connect the timing light to the leading spark plug cable of the number one (front) rotor. Check the timing at idle; timing should be on the orange mark $\pm$ two degrees. If this setting isn't correct, *don't* move the distributor! Turn off the engine, remove the cap and rotor, and adjust the point set with the adjustable base . . . again, *don't* move the distributor! Restart and check timing again; if all systems are go, disconnect timing light, reinstall vacuum lines and choke switch connecter wires. If

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you can't get the retarded system to time, check for vacuum leaks or air flow obstructions in the carburetor.

(Pic 12) This is the general thermosensor location on most models. Other models have the engine thermosensor located nearer to the "T" distributor. The other thermosensor for standard transmission models is located on the lower, driver side of the transmission.

(Pic 13) Adjust idle speed while the engine is warm. Idle adjustment screw is located on the arm of the carburetor that connects to the throttle linkage. Idle speed is 900 rpm for models with standard transmissions. You must adjust the idle speed of the automatic model while the transmission is in "Drive," so you'll need someone to sit in the car and hold the brakes on for you. If you do not have anyone to do this for you and you absolutely must adjust the idle, be sure the parking brake is fully engaged, the wheels are chocked, and you stand to the side of the car and not in front of it while doing this adjustment.

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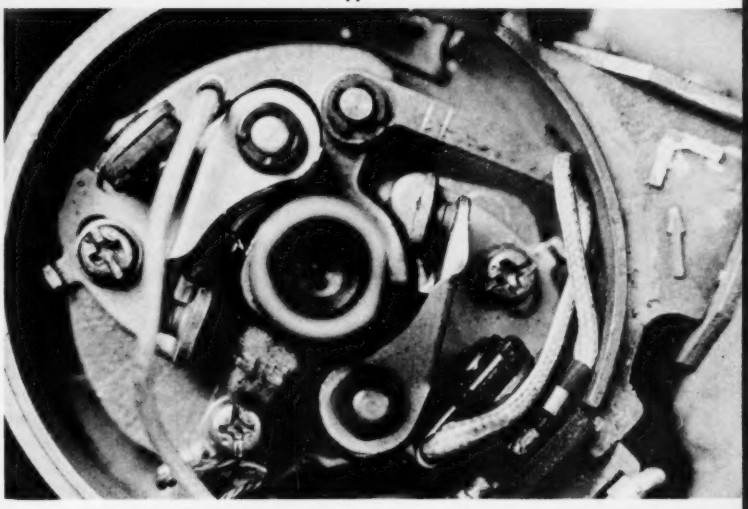

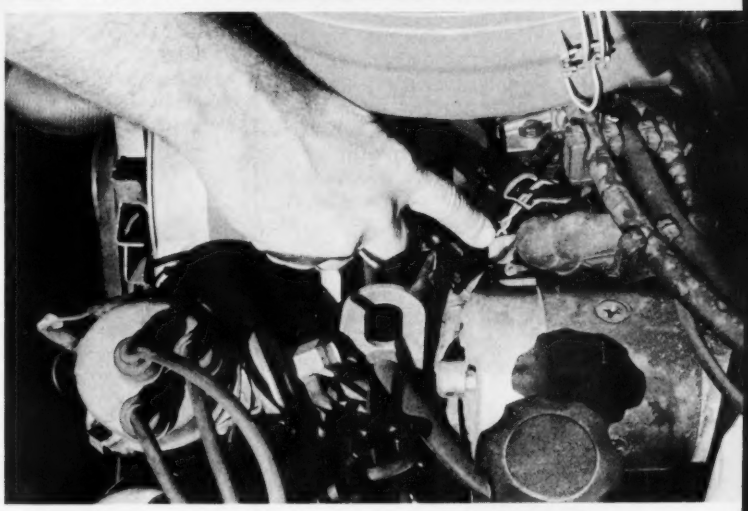

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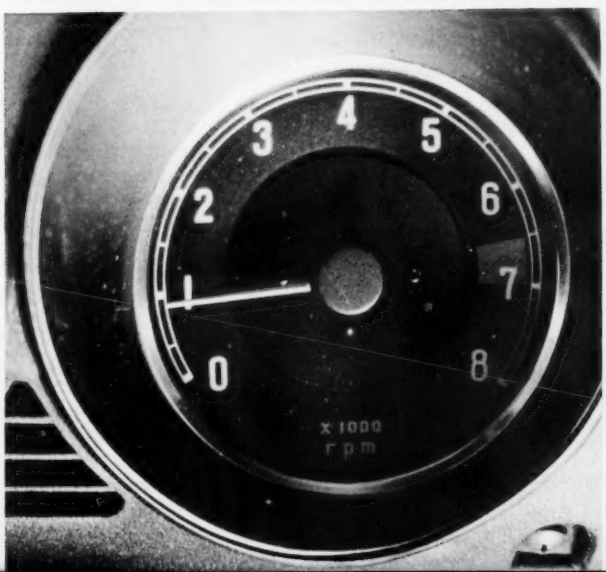

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DRIVER'S LICENSE

You say your driver's license is good the entire time you're in the service? Don't bank on it. Only 19 states automatically extend driver's licenses for military people. Twenty-one other states have varying laws, while 10 have no provisions for extensions.

The best way to avoid problems is to check with your state's license bureau.

(Information courtesy "Soldiers" Magazine)

ARE YOU SHUDDERING IN THE WIND?

If you live in a mobile home, have you considered installing tiedowns? More than 5,000 mobile homes are damaged or destroyed by high winds each year.

Two types of tiedowns are needed for greatest protection: the over-the-top tie to keep the unit from turning over, and the frame tie to prevent the home from being blown off its supports. A booklet, *Protecting Mobile Homes from High Winds,* is available free from Consumer Information, Department 65, Pueblo, CO 81009. It gives instructions on buying and installing tiedowns and clearly illustrates both types.

The ties are made of wire rope or rust-resistant steel straps which "tie" the home and its steel frame to anchors embedded in the ground.

EXHAUST POISONING DANGER

Chrysler Corporation is recalling more than 6,000 of its '74 Dodge Coronets and Plymouth Satellites to correct an exhaust system defect that can allow deadly carbon monoxide to enter the passenger compartments of those cars. With these vehicles, gases can come in if there is a path into the vehicle, such as damage to rear end sheet metal, or damage to the deck lid opening, such as could be caused by a rear end collision.

The cars to be recalled will be fitted with a tailpipe extension and inspected for trunk area and exhaust system damage. Currently, their tailpipes are parallel to the ground and do not extend as far as the rearmost portion of the bumper.

The National Highway Traffic Safety Administration is being urged by several congressmen to investigate exhaust system designs. In the meantime, DRIVER recommends the following to its readers:

- Have your vehicle's exhaust system checked out periodically for leaks, and for proper clearance and proper deflection of the tailpipe.
- If your vehicle is damaged in the rear end, have it repaired immediately, and then double checked for exhaust gas leakage.
- If you drive a pickup truck with camper there is a chance the tailpipe discharges exhaust at a point beneath the approximate center of the truck bed and thus directly under the camper. If this is the case, have it modified immediately so that the tailpipe is adequate to bring the exhaust out from under both truck and camper. This also applies to other passenger vehicles with tailpipe designs which do not clear the vehicle's undercarriage.

HELMET CARE

How many times have you seen a motorcyclist cruising down the street with a spare helmet impaled on the sissy bar? At first, this may seem to be a good place to store that extra helmet, but think again. The top of that sissy bar is poking the heck out of the helmet's padding. One ride down a street with a few bumps and the helmet's shock-absorbing value is effectively destroyed. Use the helmet attaching points on newer bikes, or fabricate one for your older machine.

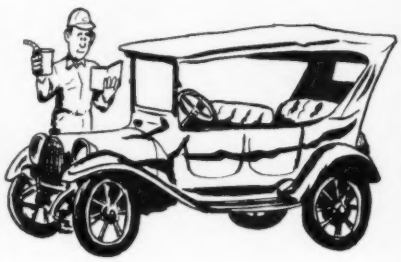
Wash your helmet's exterior with a mild soap and water solution only. Use of a petroleum-based cleaner on a polycarbonate shell helmet weakens the chemical composition of the shell. So does painting the helmet with lacquer-based paints . . . use enamel if you want to personalize your helmet.

To clean that scratched face shield, use a thin mixture of toothpaste and water, and rub dry with a soft cloth. Commercial products like Simichrome Polish are acceptable too, but don't forget to wash off any film the polish leaves behind.

CONSUMER INFORMATION

You sometimes hear people muttering about "all that government paperwork, what good does it do?" Well, DRIVER won't attempt to defend ALL government paperwork, but we will put in a plug for something called the *Consumer Information Index.*

This handy little booklet lists all kinds of government publications of interest and practical value to the general public. It makes available the results of extensive government studies and tests on products, services and other subjects of consumer concern. The *Index* includes publications that tell how to buy, use, and care for consumer products; others discuss such subjects as financial planning, home maintenance, energy conservation, health and consumer protection.



Titles of possible interest to DRIVER readers include "Car Care and Service," "More Miles Per Gallon," "Tips on Financing a Car," and, "The Hazards of Mixing Tire Types."

About 250 other publications are listed in the *Consumer Information Index,* and most are either free, or cost no more than 35 cents. The Index may be obtained free by writing: Consumer Information Center, Dept. 74, Pueblo, CO 81009.

About Miss DRIVER

(see page 13)

Lovely Diana Shasky is a Redlands, California, resident. The 22-year-old, brown-eyed blonde is considering dancing for a career. Besides dancing, Diana is fond of painting, cooking, and horseback riding. She told DRIVER her closeness to someone who is an ambulance driver has made her fully aware of the tragedies caused by careless driving.

BACKFIRE

Address your letters to:
Editor
DRIVER Magazine
AFISC/SEDD
Norton AFB CA 92409

SEAT BELT SAVE

Reference your October article, "Seat Belt Myths," I would like to add my support to the wearing of seat belts! Exactly one year prior to the date of this letter I was involved in an accident in which I was wearing seat belts and shoulder harness. I struck a Greyhound Bus and was knocked over the guard rail. My '73 Vega GT was completely demolished, but I escaped without any bodily harm "thanks" to those wonderful devices called seat belts and shoulder harnesses. I encourage everyone to "buckle up" any time they get in the car.

L/Cpl Raeford L. Vernon
"C" Co, 3rd Engr. Bn.
3rd Marine Div. FMF
FPO San Francisco 96602

Thank you for sharing your save with us, and our compliments for using seat belts. We would be interested in hearing from other readers with similar experiences.

WINTER TIPS

The November '75 back cover lists various rules to follow if stranded in a blizzard. I would like to pass on two more rules relayed to me by a "weekend reservist" who drills at this air station. He received them from AAA regarding winter driving in Maine.

1. Carry candles in your auto to be used for warmth if stranded. Insure a window is cracked for proper ventilation before use.

2. Carry balloons and string for signalling if your auto is covered by snow. Preferably, the balloons should be of fluorescent color, and inflated with hot air such as cigarette smoke. Warm air inside the balloon will cause it to rise in the cold air outside.

CDR D. P. Overeem, USNR
Naval Air Station
South Weymouth, MA 02190

SQUEAKY GRINDING NOISE

Enjoyed the October "Backyard Mechanic" article on squeaks and rattles.

Your readers should be especially alert to any strange noises shortly after installation of a new muffler. In my case, shortly after the dealer replaced the muffler on my 1971 Renault R-16, I got a squeaky grinding noise which I took to be some "settling in" noises. Nope . . . a misaligned bolt holding the new muffler on was sticking out far enough to grind the head off the bolt which secures the anti-roll sway bar to the left rear wheel! Just a little more grinding from taking about three more sharp curves, and the next squeal would have come from behind the driver's wheel—if I lived long enough to squeal.

It's worth saying again: Don't ignore new noises on new installations on old cars.

Capt Joe Corfield, USAF
Extension Course Institute/IO
Gunter AFS, Alabama 36118

Good point!

FACING THE PROBLEM

Capt Ronis' letter concerning motorcycle injuries (Backfire, Oct '75) did cause this 20-year rider to give the subject some serious thought. As a matter of fact, I am always thinking about the possibility of a nasty bike accident. The moment I stop thinking about one, I'll stop riding. How many drivers can say the same?

But my thoughts go further. Whether or not to ride, or engage in any activity with a recognized risk, should be a personal decision. Any data that Capt Ronis or others can provide to make the decision a well-informed one is welcome. I read every piece of motorcycle accident data I can find, because every scrap makes me a better rider.

I, too, would like to see motorcycle accidents, however serious or harmless, come to a stop. The way to do this is to educate everyone, riders and drivers alike, to be totally professional defensive drivers. Any attempts to solve the problem should be evaluated against the question, "Should this solution be applied to automobiles, too?," because the automobile kills, maims, or injures far more people each year.

We motorcyclists welcome the concern of Capt Ronis and others like him and only hope that the concern continues to be directed toward reducing motorcycle injuries, not reducing motorcycle riding.

Capt John W. Bailey, USAF
2557 Big Woods Trail
Fairborn, OH 45432.

We're with you, John.

RADIALS AS SNOW TIRES

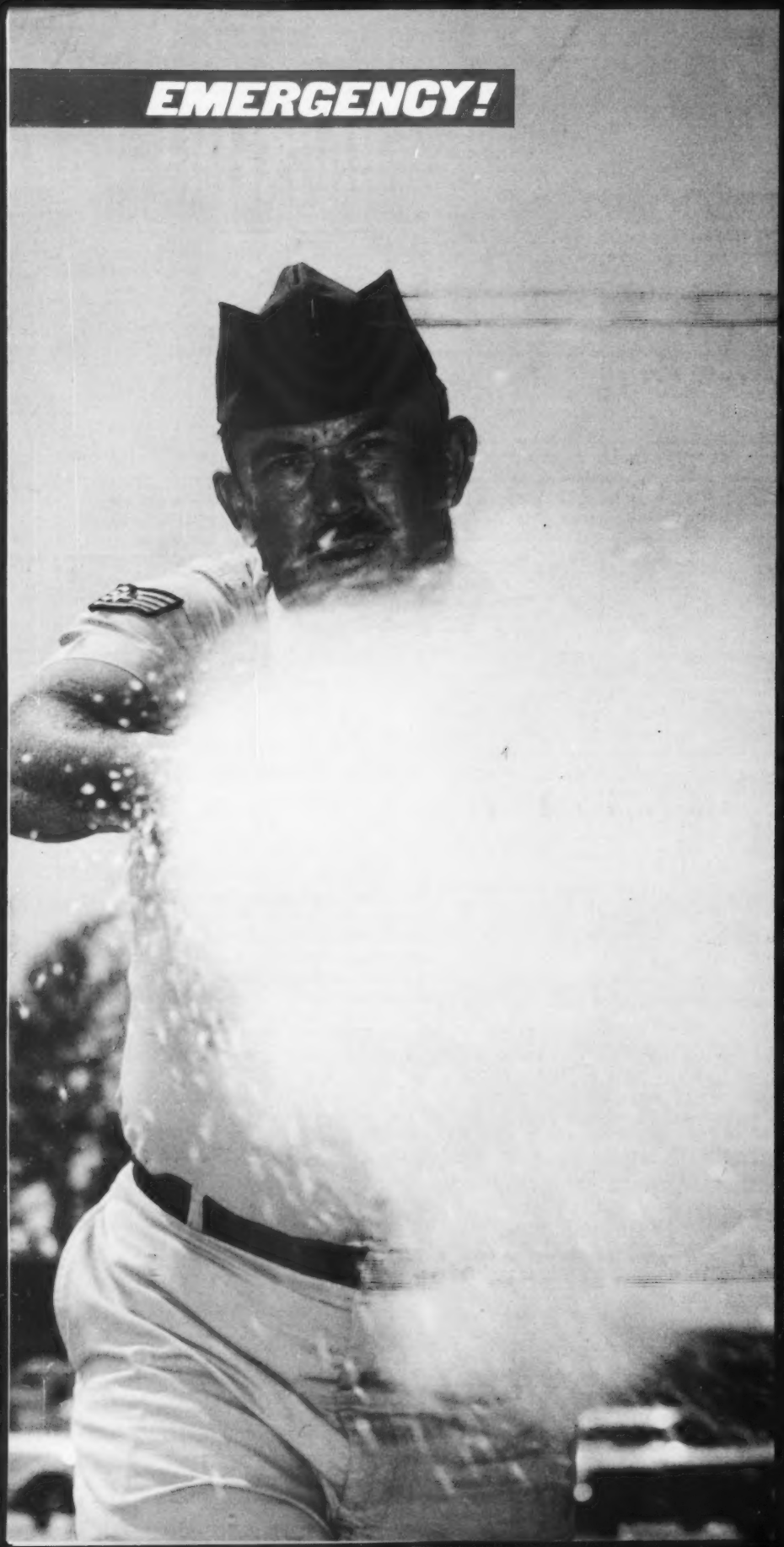
In CW3 Jenkins' letter in the September '75 issue, he stated that Radial Tires are recognized as snow tires in Maryland. I would like to add that I have been driving on steel-belted radials for the past 5½ years in Germany through all kinds of weather and road conditions and have never had any problems. I drive in the Austrian Alps in the winter months to go skiing and the tires always get me through.

Furthermore, when listening to radio spots and ads regarding road conditions and tires, it is stated that some mountain passes are passable "only with snow treads, tire chains, or radials." That alone says a lot for radials. Too bad the U.S. doesn't get into the swing of things.

Sgt Craig W. Pemberton, USA
HQ, 709th MP Bn
APO New York 09757

The flexing of radial tire treads keeps them unclogged in some snow conditions, but we still feel that in hard packed snow or on icy roads, chains are the safest method yet devised to maintain control.

☆U.S. GOVERNMENT PRINTING OFFICE: 1976—683-613/6



CAR FIRES

Most fires are the result of a short circuit in the car's electrical system, but leaking fuel lines can also start a fire.

- Don't waste time trying to disconnect the battery.
- If you haven't got a fire extinguisher, rip loose any burning wires with a jack handle and smother with a blanket or coat.
- Don't grab wires or hoses with your bare hands.
- If the fire is burning out of control and endangering the gas tank, get away from the car immediately.

Every vehicle should have a fire extinguisher, preferably a multipurpose, "A-B-C" dry chemical model. The best place to mount it is in the passenger compartment.